

WHAT IS CLAIMED IS:

1. A brake pad (5) for a disc brake (1) that can be associated with a caliper (2) with thrust means (9a, 9b, 9c) for clamping said brake pad (5) with friction  
5 against a braking band (4) of a brake disc (41), wherein the brake pad (5) comprises:

- a plate (6) with a central portion (11) provided with a layer of friction material (7), said central portion (11) having an upper edge (12) and an opposed  
10 lower edge (13) and also two lateral edges (6a, 6b);

- two support appendages (14) which extend from said lateral edges (6a, 6b) of the central portion (11), each of said support appendages (14) bounding an eye (16) capable of receiving a pin (27) of the caliper (2),

15 wherein said upper edge (12) and lower edge (13) extend substantially along circumferences of a circle imparting an arcuate shape to the central portion (11), and said support appendages (14) are disposed substantially at the height of said lower edge (13) of said brake pad (5).

20 2. A brake pad (5) according to claim 1, wherein said central portion (11) forms together with the support appendages (14) an Omega "Ω"-shaped structure.

3. A brake pad (5) according to claim 1, wherein the lateral edges (6a, 6b) are substantially rectilinear,  
25 parallel and perpendicular to a direction (Ts) tangential

to said upper edge (12) at a point halfway between said lateral edges (6a, 6b).

4. A brake pad (5) according to claim 3, wherein the support appendages (14) extend substantially  
5 perpendicularly to the lateral edges (6a, 6b).

5. A brake pad (5) according to claim 1, wherein each of the support appendages (14) comprises an upper surface (15) facing in the same direction as the upper edge (12) and capable of constituting a bearing surface  
10 for a brake pad spring element (10).

6. A brake pad (5) according to claim 5, wherein said upper surfaces (15) are substantially flat and parallel to the direction (Ts) tangential to the upper edge (12) at a point halfway between the lateral edges  
15 (6a, 6b).

7. A brake pad (5) according to claim 1, wherein said eyes (16) have a substantially rectangular shape with the corners rounded or chamfered.

8. A brake pad (5) according to claim 1, wherein  
20 the eyes (16) are disposed substantially on a tangent (Ti) to the lower edge (13) at a point halfway between the lateral edges (6a, 6b).

9. A brake pad (5) according to claim 1, wherein from each of the lateral edges (6a, 6b) there extends  
25 near the upper edge (12) a protuberance (17) which forms

a prolongation of the upper edge (12) outside the central portion (11), said protuberances (17) comprising a bearing surface (18) which constitutes an opposing surface for a brake pad spring element (10).

5        10. A brake pad (5) according to claim 9, wherein said bearing surfaces (18) are inclined with respect to the tangents (Ts) and (Ti) to the upper edge (12) and lower edge (13) of the central portion (11), so as to allow the brake pad spring elements abutting on them to  
10        exert a resilient thrust towards the central portion (11).

11. A brake pad (5) according to claim 1, having a symmetrical shape.

12. A caliper (2) for a disc brake (1) comprising  
15        thrust means (9a, 9b, 9c) for clamping at least two brake pads (5) with friction against a braking band (4) of a brake disc (41), wherein said caliper (2) comprises at least two seats (8) for receiving said brake pads (5), each of said seats (8) comprising:

- 20        - a central space (19) bounded by a connecting member (20) which connects the two lateral walls (3) of the caliper (2) and a lower edge (21) of the lateral wall (3) opposed to the aforesaid connecting member (20), and also, laterally, by two containment walls (22a, 22b);  
25        - two outer spaces (26a, 26b) which extend laterally

from the central space (19), there being arranged in each of said outer spaces (26a, 26b) a pin (27) capable of engaging a respective eye (16) of said brake pad (5), wherein both the connecting member (20) and the lower edge (21) extend along circumferences of a circle, imparting an arcuate shape to the central space (19), and said outer spaces (26a, 26b) are disposed substantially at the height of said lower edge (21) of the caliper (2).

13. A caliper (2) according to claim 12, wherein said seat formed by the arcuate central space (19) together with the outer spaces (26a, 26b) has a substantially Omega " $\Omega$ "-shape.

14. A caliper (2) according to claim 12, wherein the seats (8) at the lower edge (21) are open towards the outside of the caliper (2) and devoid of opposing or bearing surfaces which may prevent displacement of the brake pad (5).

15. A caliper (2) according to claim 12, wherein each of said containment walls (22a, 22b) constitutes a seat for a brake pad spring element (10) and has an upper surface (23a, 23b) facing radially outwards with respect to the axis of rotation (r) of the brake disc (41) and inclined towards the inside of the central space (19).

16. A caliper (2) according to claim 15, wherein the upper surfaces (23a, 23b) are substantially flat and

lie in planes (P) which intersect the lower edge (21) at a point halfway between the two containment walls (22a, 22b).

17. A caliper (2) according to claim 15, wherein  
5 each of said containment walls (22a, 22b) has a lower surface (25a, 25b) disposed on the side of the containment walls (22a, 22b) opposed to the upper surfaces (23a, 23b) and facing in the same direction as the lower edge (21) of the lateral wall (3).

10 18. A caliper (2) according to claim 17, wherein the lower surfaces (25a, 25b) are substantially flat and extend in a direction parallel to the directions tangential to the connecting member (20) and to the lower edge (21) at a point halfway between the containment  
15 walls (22a, 22b).

19. A caliper (2) according to claim 18, wherein said lower surfaces (25a, 25b) of the containment walls (22a, 22b) bound at the top said outer spaces (26a, 26b) containing the pins (27).

20 20. A caliper (2) according to claim 12, wherein said pins (27) are obtained separately from the caliper (2) and then connected thereto.

21. A caliper (2) according to claim 12, wherein the longitudinal axes of the two pins (27) of each seat  
25 (8) lie approximately in a plane tangent to the lower

edge (21) of the respective lateral wall (3) at a point halfway between the two containment walls (22a, 22b).

22. A caliper (20) according to claim 15, wherein from said upper surfaces (23a, 23b) of the containment  
5 walls (22a, 22b) a stop tooth (28) protrudes which is capable of engaging a suitable recess of the brake pad spring element (10) to secure the latter on the containment wall (22a, 22b).

23. A caliper (2) according to claim 22, wherein  
10 said stop tooth (28) is spaced from the surface of the seat (8) so as to delimit between the latter and the stop tooth (28) a passage for the brake pad spring element (10).

24. A caliper (2) according to claim 17, wherein  
15 each of the lower surfaces (25a, 25b) of the containment walls (22a, 22b) has a recess (29) capable of receiving a protuberance of said brake pad spring element (10).

25. A caliper (2) according to claim 12, wherein said caliper is a fixed caliper.

20 26. A disc brake (1) comprising a caliper (2) comprising thrust means (9a, 9b, 9c) for clamping at least two brake pads (5) with friction against a braking band (4) of a brake disc (41), wherein said caliper (2) comprises at least two seats (8) for receiving said brake  
25 pads (5), each of said seats (8) comprising:

- a central space (19) bounded by a connecting member (20) which connects the two lateral walls (3) of the caliper (2) and a lower edge (21) of the lateral wall (3) opposed to the aforesaid connecting member (20), and  
5 also, laterally, by two containment walls (22a, 22b);
- two outer spaces (26a, 26b) which extend laterally from the central space (19), there being arranged in each of said outer spaces (26a, 26b) a pin (27) capable of engaging a respective eye (16) of said brake pad (5),  
10 wherein both the connecting member (20) and the lower edge (21) extend along circumferences of a circle, imparting an arcuate shape to the central space (19), and said outer spaces (26a, 26b) are disposed substantially at the height of said lower edge (21) of the caliper (2),  
15 and said disk brake (1) further comprising:  
a brake pad (5) that can be associated with said caliper, wherein the brake pad (5) comprises:
  - a plate (6) with a central portion (11) provided with a layer of friction material (7), said central  
20 portion (11) having an upper edge (12) and an opposed lower edge (13) and also two lateral edges (6a, 6b);
  - two support appendages (14) which extend from said lateral edges (6a, 6b) of the central portion (11), each of said support appendages (14) bounding an eye (16)  
25 capable of receiving a pin (27) of the caliper (2),

wherein said upper edge (12) and lower edge (13) extend substantially along circumferences of a circle imparting an arcuate shape to the central portion (11), and said support appendages (14) are disposed substantially at the  
5 height of said lower edge (13) of said brake pad (5).

27. A disc brake (1) according to claim 26, wherein the chamfering radius of the eyes (16) is less than the radius of the cylindrical pins (27) so that the mutual bearing between the pin and the chamfered corner of the  
10 eye (16) occurs at two points of contact.

28. A disc brake (1) according to claim 27, wherein the material of the plate (6) of the brake pad (5) is suitable for undergoing plastic deformation within certain limits, such as to adapt the shape of the eye  
15 (16) in the region of contact with the pin (27) of the caliper (2) exactly to the shape of the pin (27).

29. A disc brake (1) according to claim 27, equipped with one or more brake pad spring elements (10), wherein each of said spring elements (10) comprises an  
20 elongate plate (30) of resilient material, which plate (30) is bent so as to form a "C"-shaped base (31), preferably rectangular or trapezoidal, or alternatively arcuate, said base (31) being capable of tightening resiliently about said containment wall (22a, 22b) of the  
25 caliper (2).



30. A disc brake (1) according to claim 29, wherein the base (31) of the brake pad spring element (10) is in the shape of a trapezium open along the major base and shaped so as to be substantially complementary to the  
5 shape of the containment wall (22a, 22b).

31. A disc brake (1) according to claim 29, wherein an upper section (31b) of said base (31) has a recess (32) capable of receiving a tooth (28) formed on the containment wall (22a, 22b) of the caliper (2).

10 32. A disc brake (1) according to claim 31, wherein said recess (32) is formed by a notch transverse to the length of the plate (30) which involves only a part of the width of the plate (30) so that a bridge (33) remains which ensures the structural continuity of the spring  
15 element (10) in the region of the recess (32).

33. A disc brake (1) according to claim 32, wherein at the two opposed sides of the recess (32) two limbs (34) are formed which are bent back so as to constitute opposing walls capable of bearing from two opposed sides  
20 against said tooth (28) of the caliper (2), while the bridge (33) can be positioned in a space between the tooth (28) and the lateral wall (3) of the caliper (2).

34. A disc brake (1) according to claim 29, wherein a lower section (31c) of said base (31) has a  
25 protuberance (35) capable of engaging a recess (29)

provided in the containment wall (22a, 22b) of the caliper (2).

35. A disc brake (1) according to claim 34, wherein the protuberance (35) of the spring element (10) has been  
5 obtained by means of local deformation of the plate (30), for example by means of punching or shearing and bending.

36. A disc brake (1) according to claim 34, wherein the protuberance (35) is formed by a limb of the spring element (10) bent back towards the inside of the base  
10 (31).

37. A disc brake (1) according to claim 29, wherein from the upper side (31b) and lower side (31c) of the base (31) of the spring element (10) there extend respective pressure sections, upper (37b) and lower  
15 (37c), capable of biasing the brake pad (5) resiliently so as to hold it in its position in the seat (8).

38. A disc brake (1) according to claim 37, wherein the upper pressure section (37b) and lower pressure section (37c) are bent back with respect to the adjacent  
20 upper side (31b) and lower side (31c) of the base (31) and extend in a direction substantially opposed to these latter.

39. A disc brake (1) according to claim 38, wherein the upper pressure section (37b) and lower pressure  
25 section (37c) are oriented towards the closed side of the

base (31).

40. A disc brake (1) according to claim 29, wherein each pressure section (37b, 37c) of the spring element (10) forms together with the adjacent lateral section (31b, 31c) of the base (31) a resilient arc, the elastic deformation of which is capable of forming, with the spring element (10) mounted, a resilient bias acting on the brake pad (5).

41. A disc brake (1) according to claim 29, wherein the brake pad spring element (10) has an overall shape similar to the letter "ζ" (lower case Greek letter zeta) or to its mirror image.

42. A disc brake (1) according to claim 29, wherein the brake pad spring element (10) has an overall shape similar to the letter "Σ" (upper case Greek letter *Sigma*) or to its mirror image.

43. A disc brake (1) according to claim 29, wherein each seat (8) of the caliper has associated with it two brake pad spring elements (10) which have a structure and shape which is chiral, that is to say, mirror-image but not superimposable.